Date of Report: 09/08/08
Date Received: 08/18/08
Project: Stormwater, PO M120311, F&BI 808169
Date Analyzed: 08/19/08

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH USING EPA METHOD 9040C

Sample ID Laboratory ID	pH
M120311D 808169-04	7.1

Date of Report: 09/08/08
Date Received: 08/18/08
Project: Stormwater, PO M120311, F&BI 808169
Date Analyzed: 08/19/08

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING METHOD SM2130B

Results Reported as NTU

Sample ID Laboratory ID	Date Sampled	Time Sampled	Turbidity
M120311D 808169-04	08/18/08	1250	34
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M120311B	Client:	Alaskan Copper Works
Date Received:	08/18/08	Project:	PO M120311, F&BI 808169
Date Extracted:	08/19/08	Lab ID:	808169-02
Date Analyzed:	08/21/08	Data File:	808169-02.009
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	95	60	125

Analyte:	Concentration ug/L (ppb)
Lead	28.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M120311C	Client:	Alaskan Copper Works
Date Received:	08/18/08	Project:	PO M120311, F&BI 808169
Date Extracted:	08/19/08	Lab ID:	808169-03
Date Analyzed:	08/21/08	Data File:	808169-03 .010
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	106	60	125

Analyte:	Concentration ug/L (ppb)
Copper	403
Zinc	1,200 jl

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	NA	Project:	PO M120311, F&BI 808169
Date Extracted:	08/19/08	Lab ID:	I8-322 mb
Date Analyzed:	08/21/08	Data File:	I8-322 mb.008
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Holmium	97	60	125

Analyte:	Concentration ug/L (ppb)
Copper	<1
Zinc	<1 jl
Lead	<1

Date of Report: 09/08/08
Date Received: 08/18/08
Project: Stormwater, PO M120311, F&BI 808169

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH BY METHOD 9040C

Laboratory Code: 808169-04 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	7.10	7.20	1.4	0-20

Date of Report: 09/08/08
Date Received: 08/18/08
Project: Stormwater, PO M120311, F&BI 808169

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING METHOD SM2130B

Laboratory Code: 808169-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	33.8	33.3	1	0-20

Date of Report: 09/08/08
Date Received: 08/18/08
Project: Stormwater, PO M120311, F&BI 808169

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 808161-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Copper	ug/L (ppb)	1.04	<1	nm	0-20
Zinc	ug/L (ppb)	2.52	2.48	2	0-20
Lead	ug/L (ppb)	<1	<1	nm	0-20

Laboratory Code: 808161-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Copper	ug/L (ppb)	20	1.04	92	50-150
Zinc	ug/L (ppb)	50	2.52	95	50-150
Lead	ug/L (ppb)	10	<1	104	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	<1	70-130
Zinc	ug/L (ppb)	50	65 vo	70-130
Lead	ug/L (ppb)	10	99	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probablility.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

CASE NARRATIVE

This case narrative encompasses samples received on August 18, 2008 by Friedman & Bruya, Inc. from the Alaskan Copper Works Stormwater, PO M120311, F&BI 808169 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Alaskan Copper Works
808169-01	M120311A
808169-02	M120311B
808169-03	M120311C
808169-04	M120311D

Sample M120311A was sent to Aquatic Research for oil and grease analysis. In addition, sample M120311B was sent to Aquatic Research for hardness analysis. Review of the enclosed report indicates that all quality assurance was acceptable.

All quality control requirements were acceptable.

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES
3927 AURORA AVENUE NORTH, SEATTLE, WA 98103
PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI002-84**	**PAGE 1**	
REPORT DATE:	**09/02/08**		
DATE SAMPLED:	**08/18/08**	**DATE RECEIVED:**	**08/20/08**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 808169

CASE NARRATIVE

Two water samples were received by the laboratory in good condition. Analysis was performed according to the chain of custody received with the samples. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on the following page.

SAMPLE DATA

SAMPLE ID	FOG (mg/l)	HARDNESS (mgCaCO3/l)
M120311A	12.6	
M120311B		76.0

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES
3927 AURORA AVENUE NORTH, SEATTLE, WA 98103
PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI002-84**	**PAGE 2**	
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FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 808169

QA/QC DATA

QC PARAMETER	FOG (mg/l)	HARDNESS (mgCaCO3/l)
METHOD	EPA 1664	EPA 130.2
DATE ANALYZED	08/29/08	08/29/08
DETECTION LIMIT	2.00	2.00
DUPLICATE		
SAMPLE ID		BATCH
ORIGINAL		49.3
DUPLICATE		49.6
RPD	NA	0.79%
SPIKE SAMPLE		
SAMPLE ID		BATCH
ORIGINAL		49.3
SPIKED SAMPLE		68.6
SPIKE ADDED		20.0
% RECOVERY	NA	96.74%
QC CHECK		
FOUND	7.50	39.5
TRUE	8.00	40.0
% RECOVERY	93.75%	98.70%
BLANK	<2.00	<2.00

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TO LOW RELATIVE TOO SAMPLE CONCENTRATION.

SUBMITTED BY:

Steven Lazoff
Laboratory Director

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

DUPLICATE

September 8, 2008

INVOICE #08ACU0908-1

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Stormwater, PO M120311, F&BI 808169 - Results of testing requested by Gerry Thompson for material submitted on August 18, 2008.

1 sample analyzed for Turbidity by Method SM214A @ $22 per sample	$ 22.00
1 sample analyzed for Total Zn and Cu by Method 200.8 @ $50 per sample	50.00
1 sample analyzed for pH by Method 9040C @ $25 per sample	25.00
1 sample analyzed for Oil and Grease by Method 1664 @ $85 per sample	85.00
1 sample analyzed for Total Lead by Method 200.8 @ $30 per sample	30.00
1 sample analyzed for Hardness by Method SM2340 @ $35 per sample	35.00
Amount Due	$ 247.00

FEDERAL TAX ID # (b) (6)

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 8, 2008

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on August 18, 2008 from the Stormwater, PO M120311, F&BI 808169 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ACU0908R.DOC

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

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AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI002-84**	**PAGE 2**	
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FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 808169

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SAMPLE ID		BATCH
ORIGINAL		49.3
DUPLICATE		49.6
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SPIKE SAMPLE		
SAMPLE ID		BATCH
ORIGINAL		49.3
SPIKED SAMPLE		68.6
SPIKE ADDED		20.0
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NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TO LOW RELATIVE TOO SAMPLE CONCENTRATION.

SUBMITTED BY:

Steven Lazoff
Laboratory Director

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

AKC-00061174

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER

PROJECT NAME/NO.	PO #
808169	H-1516

REMARKS

Please Email Results
merdahl@friedmanandbruya.com

Page # 1 of 1

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Oil and Grease	EPH	VPH	Nitrate	Sulfate	Alkalinity	Hardness				Notes
M120311A		8/18/08	12:50	W	1	X										
M120311B		↓	↓	W	1							X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	8/19/08	1:45
Received by:	S. Nikolaos	ARI	8/20/08	1400
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

808169

SAMPLE CHAIN OF CUSTODY

ME 08/18/08

AIG

Send Report To Gerald Thompson
Company Alaskan Copper Works
Address 628 S. Hanford St
City, State, ZIP Seattle WA 98134
Phone # 206-571-6033 Fax # 206-382-4301

SAMPLERS (signature)

PROJECT NAME/NO. STORMWATER

PO # M120311

REMARKS

Page # _____ of _____

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Oil & Grease	Hardness/Total Pb	Total Cu/Zn	pH/Turbidity		Notes
M120311A	01	8/18/08	12:50	H_2O	1							X					FOG
M120311B	02	8/18/08	12:50	H_2O	1								X				Pb Hd
M120311C	03	8/18/08	12:50	H_2O	1									X			Cu Zn
M120311D	04	8/18/08	12:50	H_2O	1										X		pH T

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Gerald Thompson	ACW	8/18/08	2:26pm
Received by:		Nhian Phan	FEBT	8/18/08	2:26
Relinquished by:					
Received by:			Samples received at 22 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

AKC-00061185